

gated diode is also arranged as a MOS transistor having a further n-type zone 19. The cathode of the SCR, formed by the highly doped n-type zone 14 is provided along the part of the periphery of the well 11 that is free from the gate 18 at a minor distance from the anode 8. The ratio between the two parts of the periphery may be chosen with relatively large freedom depending on the circumstances. Fig. 4 shows an embodiment in which the gated diode takes up only a relatively small part of the periphery of the SCR and thus has very little influence on the holding voltage V_h and on the current-conveying power of the SCR. At the position of the contact 20, the gate 18 is connected to the p-type substrate 10 and to the n-type cathode 14 which, together with the further zone 19, forms a coherent area. Needless to observe that, if so desired, the gate may also be connected to a junction in the circuit to another, suitable, voltage.

In the Claims

Please amend claims 1-3 and 7-9 as follows:

1. (Thrice Amended) A semiconductor device having a semiconductor body which on a surface comprises an integrated circuit containing protection means for protection against electrostatic discharge (ESD), the means being a compound element of an SCR and ~~at least two gated diodes~~ a gated diode, the protection means being provided in a surface area of a first conductivity type having a single well of a second, opposite, conductivity type,

wherein a surface zone of the first conductivity type forms a first anode and cathode area of the SCR element,

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^{N+}
 the surface area has a surface zone of the second conductivity type, further
¹⁴ denoted as first zone, situated remote from the well and forming a second anode and
¹⁶
¹⁴ cathode area of the SCR element, and
¹⁸
 the ~~[at least two gated diodes contain]~~ gated diode contains a gate insulated from
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 the surface of the semiconductor body and a highly-doped second conductivity type
¹⁷
 surface zone aligned to this gate further denoted as second zone, which aligned surface
¹¹ zone partly overlaps the well of the second conductivity type, characterized in that the
^N
¹⁷ said second zone stretches out only along a part of the periphery of the well, ~~[whereas]~~
¹¹
¹⁴ the first zone is provided along at least another part of this periphery of the well which is
¹⁷
 free from the said second zone, and an anode and cathode of the SCR element in the first
¹⁴
zone are not shielded from one another by the gated diode.

2. (Twice Amended) A semiconductor device as claimed in claim 1, characterized in that
 the gate of the ~~[at least two gated diodes]~~ gated diode substantially stretches out only
¹¹ along that part of the periphery of the well along which also the said second zone of the
¹⁷
 second conductivity type stretches out.

3. (Twice Amended) A semiconductor device as claimed in claim 2, characterized in that
 the ~~[at least two gated diodes are]~~ gated diode is arranged in the form of a MOS transistor
¹⁹ which has a further surface zone of the second conductivity type, deposited in the surface
^{N+}
 area of the first conductivity type, the said second zone forming one of the source/drain
 zones of the transistor and the said further surface zone forming the other one of the

source/drain zones of the transistor, the said first zone of the second conductivity type being situated at a shorter lateral distance from the surface zone of the first conductivity type provided in the well than the said further surface zone.

7. (Twice Amended) The semiconductor device of Claim 6, wherein the [at least two gated diodes are] gated diode is provided on one end of the longitudinal zone and comprises the insulated gate and the highly doped second conductivity type surface zone which partly overlaps the well of the second conductivity type.

8. (Amended) The semiconductor device of Claim 7, wherein the [at least two gated diodes are] gated diode is arranged as a MOS transistor having a further zone of the second conductivity type.

9. (Twice Amended) The semiconductor device of Claim 7, wherein the cathode of the SCR is provided along the part of the periphery of the well of the second conductivity type that is free from the [at least two gated diodes] gated diode.

~~_____ wherein a surface zone of the first conductivity type is formed forming forms one of the a first anode and cathode zones area of the SCR element, and~~

~~_____ the surface area having has a surface zone of the second conductivity type, further denoted as first zone, situated remote from the well and forming the other a second anode and cathode area of the SCR element, and~~

~~_____ the gated diode containing a gate insulated from the surface of the semiconductor body and a highly-doped second conductivity type surface zone aligned to this gate further denoted as second zone, which aligned surface zone partly overlaps the well of the second conductivity type, characterized in that the said second zone stretches out only along a part of the periphery of the well, whereas the first zone is provided along at least another part of this periphery of the well which is free from the said second zone.~~

4. (Amended) A semiconductor device as claimed in claim 3, characterized in that the ~~said~~ further zone of the second conductivity type and the said first zone of the second conductivity type form a ~~coherent~~ zone of the second conductivity type.

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claim 1

substantially stretches out only along that part of the periphery of the well along which also the said second zone of the second conductivity type stretches out.

3. (Amended) A semiconductor device as claimed in claim 2, characterized in that the at least two gated diodes are arranged in the form of a MOS transistor which has a further surface zone of the second conductivity type, deposited in the surface area of the first conductivity type, the said second zone forming one of the source/drain zones of the transistor and the said further surface zone forming the other one of the source/drain zones of the transistor, the said first zone of the second conductivity type being situated at a shorter lateral distance from the surface zone of the first conductivity type provided in the well than the said further surface zone.

Please add the following new Claims 6-9:

--6. (New) The semiconductor device of Claim 1, wherein the well of the second conductivity type is arranged in the form of a longitudinal zone, the surface zone of the first conductivity type is formed by a longitudinal zone in the well of second conductivity type which well has in its center an opening at the position of which a highly doped zone of the second conductivity